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ABSTRACT

THE PURPOSE OF THIS PAPER IS TO PRESENT A CLINICAL RESEARCH AND DEVELOPMENT (R AND D) MODEL ALONG WITH THE RATIONALE FOR ITS IMPLEMENTATION AND A SAMPLE TRAINING PROGRAM FOR CLINICAL PSYCHOLOGISTS. ALTHOUGH IT MAY BE POSSIBLE TO CORRECT SOME PROBLEMS BY A CLEARER RESTATEMENT OF THE SCIENTIST-PROFESSIONAL MODEL, A NEW MODEL OF CLINICAL R AND D HAS DISTINCT ADVANTAGES IN THE SPECTRUM OF PSYCHOLOGICAL ACTIVITIES AND ROLE MODELS. THE CLINICAL R AND D MODEL DOES NOT PROPOSE THAT THE BASIC SCIENTIST AND THE APPLIED PROFESSIONAL BE MERGED INTO A SINGLE PERSON WHO HAS THE OPTION OF PERFORMING EITHER OR BOTH FUNCTIONS. IT RATHER PROPOSES THAT THEY NOT BE COMBINED, BUT THAT A SPECIFIC ROLE BE CREATED FOR A THIRD PERSON BETWEEN THE TWO EXTREMES. WITHOUT THE DEVELOPMENT AND SUPPORT OF A MAN-IN-THE-MIDDLE BOTH ENDS OF THE CONTINUUM MAY SUFFER AS CLINICAL PSYCHOLOGISTS COME TO REGARD RESEARCH AS ONLY A TASK TO BE ENGAGED IN TO SATISFY A PARTICULAR IMAGE OR ROLE, AND PROFESSIONAL PRACTICE WOULD SERVE TO GENERATE FRUSTRATIONS AT NOT HAVING MORE EFFECTIVE TOOLS AVAILABLE. (AUTHOR/KJ)

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Clinical Psychology: A Research and Development Model[1]

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Many psychologists, particularly those who are involved in the education of the future members of our discipline, continue to be dissatisfied with the available philosphies or models on which to base the training of clinical psychologists. The scientist-professional model has been much discussed (Alexander and Basowitz, 1965; APA Committee on Training in Clinical Psychology, 1947, 1951; Cook, 1958; Hoch, Ross, and Winder, 1966; Raimy, 1950; Tyler, 1963) and there is considerable disagreement as to whether it has met its stated purposes. Although it has proven to be flexible in its implementation, the scientist-professional model has generally not produced people who are both good scientists and good practitioners. But perhaps too much time has already been spent on arguing the virtues and vices of the scientist-professional model to warrant further comments on it at this point.

The field (science? profession?) of clinical psychology is rapidly expanding and there is certainly room for new training models (Pumroy, 1964). Alexander and Basowitz (1965) have stated this viewpoint well by saying:

> The scientist-practitioner model becomes the focus of the issue only if we demand that it remain as the only model and that it be adequate to produce any kind of professional person demanded in the present market. Multiple models are possible and should be encouraged in different institutions and even within single large institutions (p. 20).

The purpose of this paper is to present a clinical research and development model along with the rationale for its implementation and a sample training program.

The Research and Development Model

Research and development (R & D) procedures have received their greatest impetus in the military and industrial domains. In these areas R & D personnel rely heavily on basic scientific findings in seeking solutions to practical problems. The R & D person usually, though not necessarily, belongs to some branch of engineering. In chemistry, for example, the industrial chemist or chemical engineer applies the findings of basic chemical research to the development of such products as drugs or plastics. He neither does the basic research nor dispenses the products of his application to the individual consumer. The medical engineer who invents a heart pump or kidney machine relies on the basic research of the physiologist and his knowledge of the applied problems of the surgeon. Thus, the R & D person can be conceptualized as a "man-in-the-middle." He serves as the necessary interface between the basic sciences and the applied fields. He stimulates and mediates the dialogue between the pure scientist, the product-oriented developer, and eventually the consumer of products.

The R & D model for clinical psychology would be closely related to Michael's (1967) definition of social technology or social engineering as "the deliberate application of systematically accumulated knowledge and theory about the nature of man and his institutions for the purpose of influencing the behavior of man and his institutions" (p. 888). The R & D model is also related to the stated concern of Section III of APA Division 12 "with the clinical

relevance and systematic application of the principles of behavior and social processes derived from experimental psychology" (Krasner, Ullman, Goldstein, Heller, and Kaufer, 1967, p. 163).

The Clinical R & D model would train Ph.D. level psychologists to systematically conduct and utilize relevant research for the development of procedures and techniques to help solve or prevent various clinical problems of individuals, groups, and institutions. An R & D clinician, for example, might interest himself in research and development in any one of numerous problem areas such as mental health and psychological adjustment, education, physical illness, poverty and employment, or urban design and redevelopment. Before discussing more fully the details of this model and the various functions of an R & D clinician, I would like to present some reasons for adopting an R & D model.

Rationale for a Research and Development Model

An R & D model could help to solve some of the problems created by the inherent conflicts and strains of the scientist-professional model. Although the scientist-professional model has attempted to train both a good scientist and a good professional within the same person, it has often produced clinical psychologists who are either poorly trained scientists or poorly trained professional clinicians. Nevertheless, the majority of psychologists continue to conceptualize the legitimate activity of clinical psychologists as falling along a continuum from basic research to application, and we continue to pay lip service to the notion that the clinical psychologist should be trained to do everything along that continuum. Which point on the continuum he chooses for his career is left to the individual, so the argument goes, but the training should at least make him aware of the activities and the values of both ends of the continuum.

The scientist-professional model seems to be most faithfully followed by clinical psychologists housed in the Psychology Clinics within university departments. While perhaps they are not always enthusiastic about the model, their job as trainers produce considerable pressures to provide the appropriate role models. Thus, in addition to conducting quality research, they are expected to see patients for testing and/or therapy, supervise clinical practicum, teach classes, and keep up with the relevant literature on clinical and professional development.

Clinical psychologists who are not in academic positions generally gravitate to one or the other end of the scientist-professional continuum. There are several reasons for this polarization. Those whose interests lie in the direction of service are soon caught up with the overwhelming demands for clinical services and administration. Those with stronger research interests are soon involved with the time demands of research production, administration and publication.

Perhaps the most important reason for the tendency toward polarization can be found in the training of clinical psychologists. Adequate professional training together with adequate scientific training is probably not possible within the context of a typical four year Ph.D. program (Alexander and Basowitz, 1965; Pumroy, 1964). In recognition of this fact some universities have tended to decrease scientific training in order to give relatively more time to professional development, while others have gone in the opposite direction. At least one university has developed an autonomous professional program in addition to its Ph.D. program (Peterson, 1968) and others have decided to discontinue clinical training altogether. A clinical R & D model can provide still one more training alternative. Instead of emphasizing one or the other

end of the continuum, universities can train specialists to bridge the gap between the poles. In fact, if greater specialized training in one or the other end of the continuum is going to continue as a trend, then such men-in-the-middle will certainly be needed.

It is likely that the scientist-professional model is maintained in part to meet a set of conflicting, though not necessarily contradictory, demands on the discipline of psychology. These demands come from several sources, both within and without the discipline. Some sources stress the need for more and better professional manpower, while others claim that what clinical psychology ought to seek and provide is more and better basic information through fundamental research. The latter point of view assumes that the social sciences currently lack the necessary knowledge to carry on applied work. Others refute this view and call it the "new know-nothingism" (Kopkind, 1967). A third position in this manpower versus data dispute is that, in relative terms, the greatest scarcity of manpower, and lack of data and expertise lies not at either end of the research-service continuum, but <u>in the middle</u>. As previously stated (Lanyon and Broskowski, 1968), "one of the nation's important manpower needs is for people who can delve into the vast store of basic research data which we now possess in the behavioral sciences, and from it fashion principles, methodologies, and techniques for 'helping people'. There are many persons who are willing to do the actual helping. Relatively few are able to contribute toward answering the question of <u>what</u> to do" (p. 1).

It does not seem necessary to document the need for more and better clinical services. The mental health needs of the nation are obvious to any

newspaper reader. It does seem necessary, however, to explore some aspects of the widespread assumption concerning the value of basic research.

Research, one can argue, is not the complete answer or panacea which so many seek. Basic research, by itself, may delude us into thinking that solutions will come as easily as the raw data. J. R. Pierce (1968, pp. 1079-1080) executive director of the Research-Communications Sciences Division of Bell Telephone Laboratories, writing in Science asked: "When is research the answer?" His major point was that "knowledge can be power only when there are able people to use it." Good research, by his criterion, not only increases our understanding of important things, but it also increases "our ability to do important things." His point bears most relevantly on the rationale for an R & D model when he says that "the effective application of understanding and invention requires the effective and interrelated carrying out of many functions other than research, including development, trial, production, distribution, and continual evaluation and improvement."

While he is carrying out these many interrelated functions for effective application, the R & D clinician can also help meet manpower demands through his role as a designer and developer of programs utilizing subprofessional personnel to carry out technical functions. A number of studies (e.g., Goldberg, 1959; Oskamp, 1965; Poser, 1966) and the recent development of non-doctoral, paraprofessional training programs (e.g., Hadley, True, and Kepes, 1967; McCaulley, 1967; McKinney and Anderson, 1967; Sines, 1967) suggest that some of the routine clinical tasks now performed by Ph.D. psychologists could be adequately carried out by suitably selected persons who are trained specifically for such jobs. The functions these persons would perform would be designed and laid out by the R & D clinician, based on findings and procedures

developed from basic research in all aspects of psychology and all relevantly related sciences. The R & D clinician is then free to utilize his time and skills for further evaluation of these programs and the design and implementation of new or modified procedures (Lanyon and Broskowski, 1968). Additional manpower saving can be realized by continued research and development of assessment techniques which are low in demand of professional time and employ actuarial interpretation (e.g., Goldberg, 1968).

The fact that paraprofessional training programs have already been developed by Ph.D. psychologists is some additional evidence bearing on the utility of an R & D model for clinical psychology. An R & D model would provide a formal structure (and ultimately a specific curriculum designed to train students) for the R & D work that some psychologists already do. In other words, the R & D role model has already been well followed in some instances within various areas of psychology,as may be seen by publication in the Journal of Applied Behavior Analysis. Skinner's monumental work on reinforcement began as basic research and has been developed to help meet practical needs in various fields such as education (Skinner, 1968) and the rehabilitation of mentally retarded and psychiatric populations. Wolpe and Lazarus (1966) have engaged in the research and development of significant treatment procedures for behavioral disorders. Lang (1968) has extended this work toward a methodology involving computer control. Smith and Smith (1966) have applied basic learning principles in a manual for parents in order that they might "treat" their own children. In the area of diagnosis and evaluation there have been outstanding attempts in the research, development, trial, production, distribution, and continual evaluation and improvement of assessment techniques (e.g., MMPI). There are also published accounts of similar endeavors in nonclinical areas of psychology, not to mention unpublished research and development carried out by psychologists within social agencies or institutions where they work.

A well-defined R & D model used in graduate clinical education and training would increase the probability that such efforts will continue and increase in quantity and quality.

Many fail to realize the intimate relationship between research and development in clinical psychology because there is little tendency for research and development to merge into the role of a single individual. One person, for example, might do the basic theorizing and research of an assessment procedure. Another might develop and apply it to meet such practical needs as screening police recruits, college students, or candidates for management training.

Unfortunately, when separate persons do the research and the development, the likelihood of irrelevant research or haphazard application is increased because many communication barriers reduce the probability of mutual feedback and interchange. Assuming that ultimately all research is relevant, what are the potential costs to the discipline of haphazard application? Poor application increases the probability that any new procedure will fail to meet its intended goal or fail to solve the problem it was designed to solve. Such failure can result in an increased resistance by practitioners of older procedures to any further innovations and a continued belief in the ultimate value of untested traditions. More generally, the value of research is discredited and the notion of "clinical art" is reinforced. Haphazard research application may also convince other professionals that psychological research has little value and, in turn, may promote the view of clinical psychologists occupying the lower status roles of psychometrician and "junior practitioner."

On a broader level, the R & D model may help stimulate the inclusion of clinical psychologists in multi-disciplinary research programs. A clinical

psychologist trained within the context of an R & D model can interact in a more meaningful way with scientists trained in other disciplines. For example, a knowledge of systems analysis or operations research (Buckley, 1968; Hillier and Lieberman, 1967) can help the clinician communicate more clearly with other scientists, as well as engineers, to achieve real team effort and sclutions.

Besides serving the needs of interdisciplinary research, R & D training can stimulate the crossfertilization necessary between the academic and professional schools which now exist side by side in some large universities. Tryon (1963) has convincingly argued "that the main fission in psychology is that between academic psychology and professional psychology--a division that all psychologists know very well and just as certainly avoid discussing" (Tryon, 1963, p. 134). He documents the fact that professionalism is on the rise in <u>all</u> areas of psychology snd spells out the implications of this increasing professionalism for academic psychologists. One of the largest problems is the increasing professional orientation of graduate students (Tryon, 1963). Clinical faculty in many graduate programs bemoan the many applicants who want to go into private practice or engage at least part-time in similar, purely service roles. It is naive to assume academicians can completely brainwash students or completely extinguish such interests. Students, upon graduation, will eventually "do their own thing" and do it despite inadequate training. Such service interests among students are additionally troublesome for the faculty who recognize that many of these same students have strong theoretical interests and good research potential which will likely be lost to the discipline. Cook (1958), in discussing Clark's (1947) findings of a stated interest among graduate school applicants in the application of psychological techniques, said: "This is consistent with a long standing impression of mine that theoretical

interests, rather than being absent in professional psychologists, are overlaid with a strong service orientation" (Cook, 1958, p. 641).

Experimentalists, especially academic experimentalists, will be looking to their clinical colleagues (who have continually wrestled with this problem) for possible solutions to this widening academic-professional fissure. Tryon's (1963) solution is the development of professional programs within professional schools. One of his reasons for this solution stems from the issues which arise out of such needs as professional certification, which often restrict the academic freedom of academic departments. An alternative or additional solution is an R & D program within an academic department that may draw upon more purely professional staff of professional schools. An R & D model would have wide appeal to those students and faculty who feel a personal conflict between an academic-research versus a professional-service career. It may also help to close the widening gap between the academic clinician and his professional colleagues outside the university.

There is a very general, but perhaps most important, reason for the support of an R & D model. The logic is difficult to spell out, but it centers around the notions of invention, theoretical stimulation, and creativity.

It is recognized by most scientists that research is intimately related to the technological tools which are currently available. Tests of many new theoretical hypotheses must await the development of new technology, which is often developed solely to test such theoretical hypotheses. What is not as apparent is the fact that there is a two-way street between technology and theory. Brooks (1968), in his article "Physics and the Polity", clearly spells out the argument that in the history of science and technology there have been numerous cases when technology or inventions, developed mainly for practical purposes, have stimulated new theoretical developments. Examples are the steam engine which restimulated the theoretical interests in thermo-dynamics; the

transistor which provided new impetus to the study of solid-state physics; and the laser which gave a rebirth to the science of optics. So it may happen that the development of primarily service-directed tools or programs could help stimulate new theoretical notions about psychopathology, learning, personality development, or what have you! For example, the creative use of new audio-visual equipment might accelerate the successful vocational rehabilitation of physically disabled patients. Although developed for strictly practical purposes through trial and error experimentation, the theoretical exploitation of such technology may give new insights into such theoretical concepts as "self-image," "covert communication cues," "modeling," or "empathy." Technological exploitation for the sake of theory is more likely to be carried out by an appropriately trained person, who sees the interplay of research and service, theory and technology.

Perhaps technological exploitation has not occurred in the social sciences to the extent that it has in the natural sciences because technology and technological skill is frequently looked upon by proponents of traditional clinical training as a poor stepchild of clinical art. Technology itself has come of age and is now a powerful force which will help to shape the future of society (Mesthene, 1968). It is imperative that clinical psychologists learn to recognize, control, and exploit this force for the benefit of others.

Creativity is a concept of recent interest to many psychologists. The question of whether or not it is inherited, learned,or both is beyond the scope of this paper. In any case, it is most probable that creative persons will emerge from programs which stimulate and reinforce creativity. Traditional clinical training too frequently stimulates and reinforces the creation of vague untestable concepts and simultaneously extinguishes creative attempts

to exploit research findings and develop better ways to identify and solve problems. Clinicians do not ask, "How can these findings be applied to develop new clinical techniques or procedures?" as frequently as they ask, "How do these findings support or not support the current clinical technique or procedures?" While this latter question is appropriate it is less likely than the former to stimulate new and innovative clinical ideas. Furthermore, this latter question is also likely to lead clinicians to ignore non-clinical research studies which do not have direct bearing on current clinical procedures and techniques. A recent book, Psychotherapy and the Psychology of Behavior Change (Goldstein, Heller, and Sechrest, 1966), demonstrates very well the creative exploitation of non-clinical research findings as they may apply to improve or drastically modify current clinical practice of individual and group psychotherapy.

The complex reciprocal relationship between invention, theoretical stimulation, and creativity, as they relate to the academic-professional interchange, was well phrased by Tryon (1963):

> It is doubtful that academic psychology does have or should have much direct applicability to real life situations. Nevertheless, the readiness of the academician to translate most any kind of abstract theory into operational terms for testing is a form of thinking most valuable to the professionally oriented student, and the methods devised by academicians can often, with a bit of imagination on the part of the professional, be critically useful in tackling real life problems. Conversely, the practical principles and findings of the professional and his own useful methodologies can have the most stimulating effects on the thinking and work of the receptive academician (p. 142).

A final set of reasons for a formal R & D model lies in our commitment as psychologists to society. Although scientists have historically been viewed as asocial in their scientific interests, psychologists cannot ignore the fact that as members of society and social institutions they have some responsibility to help guide and direct society and institutions for the good of all concerned. The nature of this relationship is reciprocal. As we serve society we will gain in public esteem and financial support. Craig Hosmer, ranking House Republican member of the Joint Committee on Atomic Energy, in an editorial for Science listed some reasons for the change in emphasis of federal R & D spending:

> . . . there seems to be a new emphasis on achieving national goals through R & D, and considerably less concern about the acquisition of knowledge for its own sake. Such concepts as world leadership in science are rather nebulous to the average citizen as compared with immediate social and political goals. What can the scientific community do about this? I believe it must go back to the equation PE=PM -- public esteem equals public money -- and consciously rekindle some of the public's former affection for science. The scientific community should take greater pains to make clear that its efforts contribute directly and indirectly to the public good (Hosmer, 1968, p. 1417).

A similar theme was repeated by Milton Harris, Chariman of the Board of Directors, American Chemical Society, and Dael Wolfle in a later Science editorial when they wrote about "The Paradox of Science in the Universities".

> . . . one has little difficulty in recognizing that the acquisition of new knowledge is only one of the values of basic research. It also makes important contributions to teaching and especially to the development of trained scientific manpower. Here the needs are great indeed for burgeoning education programs; for public sector programs in health, transportation, environmental control, and many others; and for the maintenance of a strong and viable industrial community, without which there would be no support for any of these activities (Harris and Wolfle, 1968, p. 223).

Psychologists may not be motivated to research and develop better procedures for corporate profit but they should be more consciously aware that society has a right to expect practical "spin-offs" and by-products which will help solve the many social problems of health, education, and welfare. We are frequently asked to advise and consult on the solution to such problems. We frequently find ourselves with no systematic research and development upon which to draw. We frequently find ourselves ill equipped to creatively extrapolate what we currently know about basic research to adequately answer these requests.

Many graduate students and faculty are interested in application and in service. Society is asking for it. Manpower shortages and the current lack of R & D personnel obviates immediate intervention. While it is granted that we currently do not have all the basic data we need, even if future basic research were to provide these data, we might still find ourselves without a sufficient number of persons trained to exploit and develop these findings in order to implement new procedures. Thus, we are left with the need to begin formal training programs which may help solve the social problems of the future.

A Clinical R & D Training Program

While it is easy to recognize the need for a clinical R & D model, it is a more difficult matter to specify the content of a clinical R & D training program. Details of recruitment, curriculum, practicum, and internship need to be worked out depending on specific conditions of particular university settings. It is possible, however, to set down some principles for recruitment and training and some general examples of the kinds of courses and activities in which clinical R & D students might engage.

Recruitment. Vocational attitudes and expectancies are probably key elements of a new training program. The new graduate student ought to be given the expectancy, before his acceptance and throughout his training, that he can optimally function in the role of a research and development clinician. Ideally, the career expectancy of this student should be to function as a person capable of understanding basic research and capable of developing practical applications. He should not aspire to be either a pure scientist, a pure practitioner, or both. Additionally, a clinical R & D program ought to recruit and select students whose undergraduate records and various test results reveal at least moderate aptitude for science, engineering, or mathematics.

Curriculum. The R & D training model requires an innovative curriculum which will depart in several ways from the well-established curriculum of the scientist-professional model.[2] The curriculum should be designed to give the student training specific to the R & D functions he expects to perform. He should receive formal content courses in the relevant basic sciences and some formal training in the techniques of application, just as an electronics R & D engineer receives courses in the theory of electronics and participates in courses stressing technical electronic skills.

For a basic core of psychological knowledge a clinical R & D student ought to receive courses in learning theory, developmental, social, personality, and educational psychology. It is impossible to envision which specific content areas of psychology will ultimately have the most applicability for clinical R & D. The above areas seem to have an initial high probability for such application. Human engineering and physiological psychology are also strong candidates for inclusion as core courses, depending upon more specific career goals. Community psychology may soon develop a significant core of knowledge to warrant its inclusion.

Regardless of content, courses and seminars should focus on the question of how research findings might be applied to help solve various problems. The previously cited text, Psychotherapy and the Psychology of Behavior Change (Goldstein, Heller, and Sechrest, 1966) illustrates such an approach. Additionally, faculty should encourage the students to design research which will increase our understanding of the practical (as opposed to theoretical) problems needing solutions.

Very early in his career the clinical R & D student should receive training in formal research methodology. Besides traditional courses in experimental design and statistics the student should be exposed to concepts of utility theory, systems analysis (operations research), and computer programing. For example, courses could include the use of computer simulation applied to such psychological concepts as intelligence (Hunt, 1968) and personality (e.g., Loehim, 1968). Research designs and hypotheses should become increasingly practical in nature. Above all, creativity in research design and methodology should be emphasized. This conceptualization of graduate research education was well phrased by the Education for Research in Psychology committee report (1959):

> Education for research must do more than develop competence in designing, executing, and interpreting experimental or other studies. Development of such competence is important, but much more important is the development of the individual's creativeness - his ability to discover new relations, to reformulate or systematize known facts, to devise new techniques and approaches to problems (p. 170). (Italics mine)

The traditional areas of psychodiagnostic testing and evaluation should be extensively modified. The new R & D clinician ought to be knowledgable about the research on the reliability and validity of current tests and assessment techniques. He ought to be able to interpret, within the range of the tests' validity, the results of current test batteries. His experience with technical administration and scoring could be greatly reduced. As a general rule one might expect him to know how to administer tests well enough to be able to teach subprofessionals how to administer them adequately. My more traditional colleagues will wince at the anticipated loss of much "clinical" information gained by doing one's own test administration. The validity of such information, however, is doubtful. Furthermore, it is possible that the R & D clinician might develop more effective procedures to regain lost information concerning an individual's test behavior (e.g., audio-visual sampling of test sessions). Any new procedures he thereby develops can be handed on to the professional practitioner for his own use. The resulting situation would be analogous to the medical internist whose technicians carry out routine diagnostic tasks (e.g., X-rays, blood and urine tests, etc.) designed for them by the medical R & D man while the physician spends his time interpreting the test results and making decisions regarding diagnosis and treatment.

In place of traditional testing courses greater emphasis should be given to related assessment issues. R & D clinicians should be thoroughly familiar with techniques of test construction and classical psychometric procedures. He should be cognizant of recent developments in decision theory (e.g., Cronbach and Gleser, 1965) and related problems of actuarial assessment (e.g., Meehl and Rosen, 1955). Such an emphasis could culminate in the development of a systems approach to clinical assessment and decision-making.[3]

Practicum. Breadth rather than depth should be the keynote of practicum. It is unlikely, with the explosion of new knowledge and technology, that any specific practicum skill or technique will remain unchanged in its operation or effectiveness. Besides covering a broad spectrum of assessment and treatment techniques, the student might participate in the selection, training, and evaluation of subprofessional personnel. Practicum experiences could also involve the student in the important R & D function of reporting or disseminating information about current research on new clinical techniques and procedures.

The clinical R & D student can serve as a useful member of the consulting team. Along with his faculty he may serve as a consultant to professional groups (e.g., Speech and Audiology, Vocational Rehabilitation, Special Education, Public Health), social institutions and agencies, and neighborhood groups. The consultative role for the student should be designed so that it is problem-oriented and short term, allowing him to view the entire process from initiation to closure. Similar to course work, practicum activities and conferences should be viewed as a source for research hypotheses and the eventual development of improved procedures.[4]

Internship. Internship training for clinical R & D students should be relevant to their future vocational goals. By the time of internship a student may have chosen a specialized area of applied interest. Internships should not be restricted to traditional psychiatric settings. Regular schools, speech and hearing clinics, institutions for the handicapped, and vocational rehabilitation centers can provide opportunities for the intern to practice the research and development of improved procedures. These procedures could be of an assessment or treatment nature. Students may even become involved in the development of technological hardware such as teaching devices or reinforcement delivery mechanisms. Internship training could also continue in traditional settings such as the VA and other psychiatric hospitals, clinics, and agencies engaged in psychodiagnosis and psychotherapy. This exposure to traditional procedures would serve the purpose of giving the intern first-hand knowledge of the practical problems and needs of such institutions. Furthermore, by restricting exposure to traditional practice in those institutions best equipped to handle them, the clinical faculty can devote their efforts to innovative practicum procedures and use the limited clinic space as a sort of "controlled clinical laboratory". Finally, students could intern in strictly research centers and institutes and during this time learn more about large scale interdisciplinary research methodology and how such research could be utilized for development.

Summary

There is considerable disagreement on the effectiveness of the scientist-professional model in supplying the demand for good scientists and good professionals. Although it may be possible to correct some of these problems by

a clearer restatement of the scientist-professional model, a new model of clinical R & D has distinct advantages in the spectrum of psychological activities and role models. Some psychologists may already view themselves as R & D persons. A more explicit recognition and structuring of an R & D model will serve to increase the quantity and quality of such persons.

It may appear that this new model is simply a mere rewording of the scientist-professional model. It must be emphasized, however, that the clinical R & D model does not propose that the basic scientist and the applied professional be merged into a single person who has the option of performing either or both functions. Rather, it proposes that they not be combined, but that a specific role be created for a third person between the two extremes.

As new programs emerge to train specialists at either one or the other end of the scientist-professional continuum, specialists will also be needed to bridge the gap between them. Without the development and support of a man-in-the-middle both ends of the continuum may suffer as clinical psychologists come to regard research as only a task to be engaged in to satisfy a particular image or role, and professional practice serves to generate frustrations at not having more effective tools available. Furthermore, basic research alone may serve only as a convenient distraction from the real problems needing solutions; professional practice alone may serve only as a temporary salve for own concern about "really helping people." (Lanyon and Broskowski, 1968).

Footnotes

1. This paper is a revision and extension of a paper by Lanyon and Broskowski (1968).

2. Two articles (Alexander and Basowitz, 1965; Pumroy, 1964) have pointed to the high degree of similarity among psychology departments in their published curriculum.

3. Nathan (1967) has taken a preliminary step in this direction although his model lacks the conceptual clarity one could ultimately achieve with more reliable and valid assessment tools.

4. A somewhat similar model of practicum already exists at the Psychology Center of the University of Cincinnati (Goodstein and Oseas, 1967).

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